

## **6. ASSESSING PROJECT-SPECIFIC, LOCALIZED, NON-OZONE IMPACTS**

### **6.1 INTRODUCTION**

The previous chapter presented a methodology for assessing project impacts on regional ozone levels. This chapter presents information on how to assess a project's impacts on pollutant levels other than ozone. These impacts tend to be localized near the area where they are produced.

Project construction and operation activities can result in several air pollutants whose effects are often localized near the area of their origin. Such air quality effects are termed local air quality impacts and include, but are not necessarily limited to, fugitive dust, carbon monoxide (CO), toxic air contaminants (TACs), odors, and entrained fungal spores that cause San Joaquin Valley Fever.

Many of these pollutants can adversely impact the general population, especially those most likely to suffer adverse health effects from air pollution, such as children, the elderly, and those suffering from acute and chronic medical conditions. Land uses where such people are likely to reside or spend a substantial amount of time include residences, schools, playgrounds, day care centers, job sites, retirement homes, convalescent homes, and hospitals.

The project environmental document should identify any land uses near the project site that may have people who are particularly sensitive to localized, non-ozone air quality impacts. Reasonably foreseeable such land uses should be identified as well. This would include potential land uses that could reasonably be sited nearby based on zoning or land use designations.

The location of a development project is a major factor in determining whether it will cause or be impacted by localized, non-ozone air quality impacts. The potential for adverse localized, non-ozone air quality impacts increases as the distance between the source of such emissions and sensitive populations decreases. Localized air pollutants can adversely affect all members of the population, and thus any consideration of potential air quality impacts should include all members of the population. Localized air pollution impacts generally occur in one of two ways: 1) A new source of air pollutants is proposed close to existing populations (An example would be an industrial facility proposed for a site near a residential area or a day-care center); and, 2) A new development proposed near an existing industrial facility.

To minimize localized air pollution impacts, lead agencies should consider limiting or avoiding the following types of potential land use conflicts:

- A development project near a congested intersection or roadway. High traffic volumes and congested conditions can lead to high but localized concentrations of CO, particulate matter (PM), or TACs.
- Development projects close to a source of TACs or high traffic levels.
- Development projects near a source of odorous emissions. Although odors generally do not pose a health risk, they can be a nuisance if they interfere with the use of neighboring land uses.
- Development projects near a source of high levels of dust emissions. Fugitive dust can pose health risks (when it results in elevated PM<sub>10</sub> and PM<sub>2.5</sub> levels) and can be a nuisance if it interferes with neighboring land uses.

When evaluating whether a development proposal has the potential to result in localized impacts, lead agency staff should consider the nature of the proposed development and its potential to produce air pollutant emissions, the distance between the emitting facility and the potentially affected population, the direction of prevailing winds, and local topography. Often, providing a buffer zone between the source of emissions and the subject population will alleviate the problem.

## **6.2 FUGITIVE DUST**

The Ventura County Air Pollution Control District (APCD or District) recommends minimizing fugitive dust, especially during grading and excavation operations, rather than quantifying fugitive dust emissions. Therefore, the mitigation measures described in Section 7.4.1, “Fugitive Dust Mitigation Measures,” should be applied to all project-related dust-generating operations and activities. Occasionally, the District may recommend that a project’s potential to affect ambient particulate concentrations be analyzed with an appropriate air pollutant dispersion computer model. The purpose of such an analysis is to help determine if the amount of dust that will be generated by project-related activities will cause an exceedance of an ambient particulate air quality standard.

If the analysis indicates a possible violation of an ambient particulate air quality standard, a finding of significant impact should be made and appropriate mitigating measures identified. The District will recommend that PM modeling be conducted if, in its opinion, project-related activities and operations may generate airborne PM in such quantities as to cause an exceedance of a particulate ambient air quality standard in an area where people live and work, including, but not limited to, residential areas, schools, day care centers, office complexes, and hospitals. Examples of projects that may require supplemental modeling include mining and quarrying operations, landfills, and excavation and grading operations for large development projects. If the District recommends a particulate modeling analysis, it will provide guidance as to appropriate models and modeling protocols.

### **6.3 SAN JOAQUIN VALLEY FEVER**

There is no recommended threshold for a significant San Joaquin Valley Fever impact. However, listed below are factors that may indicate a project's potential to create significant Valley Fever impacts:

- Disturbance of the top soil of undeveloped land (to a depth of about 12 inches)
- Dry, alkaline, sandy soils.
- Virgin, undisturbed, non-urban areas.
- Windy areas.
- Archaeological resources probable or known to exist in the area (Native American midden sites).
- Special events (fairs, concerts) and motorized activities (motocross track, All Terrain Vehicle activities) on unvegetated soil (non-grass).
- Non-native population (i.e., out-of-area construction workers).

The lead agency should consider the factors above that are applicable to the project or the project site. The likelihood that the Valley Fever fungus may be present and impact nearby land uses (or the project itself) increases with the number of the above factors applicable to the project or the project site. Based on these or other factors, if a lead agency determines that project activities may create a significant Valley Fever impact, the District recommends that the lead agency consider the Valley Fever mitigation measures listed in Section 7.4.2, "Valley Fever Mitigation Measures." These mitigation measures focus on fugitive dust control to minimize fungal spore entrainment, as well as minimizing worker exposure.

### **6.4 CARBON MONOXIDE**

The District recommends use of the CALINE4 computer model to determine if a project may create or contribute to an existing CO hotspot. CALINE4 is the latest in a series of line source air quality models developed by the California Department of Transportation (Caltrans). Given the magnitude of the CO source, site geometry, and local meteorology, CALINE4 can predict pollutant concentrations for receptors located within 500 meters of a roadway. In addition to predicting concentrations of relatively inert pollutants such as CO, the model can predict nitrogen dioxide (NO<sub>2</sub>) and suspended particle concentrations. It also has special options for modeling air quality near intersections, street canyons, and parking facilities.

Historically, the CALINE series of models required relatively minimal input from the user. Spatial and temporal arrays of wind direction, wind speed, and diffusivity were not needed by the models. While CALINE4 uses more input parameters than its predecessors, it is still considered a very easy model to implement. For most

applications, optional inputs can be bypassed and many other inputs can be assigned assumed worst-case values.

In addition to CALINE4, Caltrans has developed a CO hotspot screening procedure. This procedure can be used to provide a quick “worst-case” estimate of ambient CO concentrations near a roadway intersection. The screening procedure is contained in Caltrans’ *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol). Both CALINE4 and the CO Protocol, including the CO screening procedure, can be downloaded from the Caltrans Environmental Division’s webpage, located at <http://www.dot.ca.gov/hq/env/air/index.htm>.

#### **6.4.1 Screening Procedure for Carbon Monoxide Analysis**

A CO hotspot screening analysis using the screening procedure in Caltrans’ CO Protocol should be conducted for any project with indirect emissions greater than the applicable ozone project significance thresholds in Section 3.3.1 that may significantly impact roadway intersections that are currently operating at, or are expected to operate at, Levels of Service E, or F. A CO hotspot screening analysis should also be conducted for any project-impacted roadway intersection at which a CO hotspot might occur. It is especially important to conduct such an analysis if a proposed project will either create or contribute to a CO hotspot that may adversely affect the public, especially the young, the elderly, and those with medical conditions that could be exacerbated by elevated CO concentrations. If the screening analysis indicates that there may be a CO hotspot, the CALINE4 model should be run as outlined in Appendix B, “Detailed Analysis,” of the Caltrans CO Protocol.

The screening analysis was designed to estimate 1-hour and 8-hour CO concentrations for projects involving signalized intersections. The methodology estimates 1-hour CO levels, which then can be converted to estimates of 8-hour CO levels. Screening procedures for additional types of projects were under development at the time the Caltrans CO Protocol was being developed and will be released as supplements to the protocol.

Using the screening methodology to calculate an 8-hour average CO concentration as presented in the Caltrans CO Protocol, it is not possible for a project to result in a modeled 1-hour exceedance of the 1-hour CO standard without also causing a violation of the corresponding 8-hour standard. This is a consequence of using a “persistence factor” to convert the modeled 1-hour concentration to an 8-hour concentration.

The purpose of the screening procedure is to obtain conservative estimates of CO concentrations without having to run CALINE4. Step-by-step instructions on how to use the screening procedure are given in Appendix A, “Screening Procedure,” of the Caltrans CO Protocol.

The screening procedure is not applicable to all projects. If the screening procedure assumptions are not appropriate for the subject project, the screening procedure is not applicable, and the CALINE4 model should be used. The main limitations of the screening procedure are presented in Table 6-1, "Scenarios That Should Not Be Modeled Using the Screening Procedure."

**TABLE 6-1**  
**SCENARIOS THAT SHOULD NOT BE MODELED**  
**USING THE SCREENING PROCEDURE**

Vehicles in cold start mode greater than 50%
Percentage of heavy-duty gasoline trucks greater than 1.2%
Traffic volumes greater than 1,000 vehicles/hour/lane
January mean minimum temperature less than 35° F

The screening analysis requires the user to input certain information, such as intersection type, traffic volume, analysis year, background CO concentration, and average cruise speed. All of the needed information is outlined in the screening protocol. Most of the information is project-specific and must be supplied. The APCD recommends that the highest CO concentration reported over the last three years for either the El Rio or Simi Valley air monitoring stations (whichever is nearest the project site) be used for the background CO concentrations. Table 6-2 gives the highest 1-hour and 8-hour CO concentrations for both the El Rio and Simi Valley monitoring stations for 2000 - 2002. Contact the District at 805/645-1427 for updated information on carbon monoxide levels. The average speed should be the same as that used in the URBEMIS emissions analysis. Typically, that will be 40 miles per hour.

**TABLE 6-2**  
**HIGHEST BACKGROUND CARBON MONOXIDE CONCENTRATIONS FOR –**  
**2000 - 2002 AT THE EL RIO AND SIMI VALLEY MONITORING STATIONS**  
(parts per million)

	<u>1-hour</u>	<u>8-hour</u>
El Rio	2.3	1.6
Simi Valley	6.2	4.3

### **6.4.2 Detailed Procedure for Carbon Monoxide Analysis**

If the screening procedure is not applicable for the subject project, or if the screening procedure indicates a potential CO hotspot, the CALINE4 model should be run as outlined in Appendix B, "Detailed Analysis," of the Caltrans CO Protocol.

CALINE4 also requires the user to supply certain input parameters. The inputs should be as recommended in the CO Protocol, except that the background CO concentrations should be the highest 1-hour and 8-hour CO concentration reported over the last three years for either the El Rio or Simi Valley air monitoring stations (whichever is nearest the project site, see Table 6-2). If inputs other than those recommended in the Caltrans CO Protocol or these Guidelines are used, they should be justified and documented to the satisfaction of the lead agency that such changes are warranted. Documentation and justification of any changes to the CO Protocol default values should be included in the environmental document.

If the CALINE4 model indicates that the project may cause a CO hotspot (or contribute to an existing hotspot), a finding of significant impact should be made, unless mitigation measures can be implemented that reduce the hotspot concentration to less than the applicable CO standard. Mitigation measures to reduce significant CO impacts are discussed in Section 7.5.5, "Carbon Monoxide Mitigation."

## **6.5 TOXIC AIR CONTAMINANTS**

All projects that may emit TACs should be assessed to determine whether those TAC emissions may adversely impact nearby populations. When considering potential TAC impacts, lead agencies should consider both of the following situations: 1) a proposed new or modified facility that may emit TACs near existing land uses; and, 2) a new land use proposed near an existing facility that emits TACs.

### **6.5.1 Determining Whether the Project Will Emit Toxic Air Contaminants**

The first step in determining whether a proposed project may adversely impact nearby populations with TACs is for the lead agency to determine whether the subject project will emit toxic substances. This information may be obtained from the project applicant as part of the permit review process. The lead agency should inquire about the types and amounts of toxic substances the facility may use and emit to the atmosphere. Lead agencies also can refer to Appendix D, Major Toxic Air Contaminant Regulations and Common Toxic Air Contaminant Sources and Substances, for a list of common TAC sources and substances that may be encountered at facilities in Ventura County. Moreover, many types of equipment and processes that require a District Permit to Operate also emit TACs. Therefore, lead agencies can refer to Appendix B, Common Equipment and Processes Requiring a Ventura County APCD Permit to Operate.

In addition to the TAC sources and substances listed in Appendix D, the lead agency also should refer to the extensive list of toxic chemicals called the *Title III List of Lists, Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-know Act (EPCRA) and Section 112(r) of the Clean Air Act, as Amended*. This list can be downloaded from <http://www.epa.gov/ceppo/pubs/title3.pdf>. This consolidated chemical list includes chemicals subject to reporting requirements under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA), and chemicals listed under Section 112(r) of Title III of the Clean Air Act (CAA) of 1990, as amended. Lead agencies also can refer to State of California's Office of Environmental Health Hazard Assessment (OEHHA) website at <http://www.oehha.ca.gov/home.html>. This page provides access to OEHHA's Toxicity Criteria Database, the Proposition 65 list of chemicals known to the State of California to cause cancer, birth defects or other reproductive harm, and information regarding TAC health risk assessments.

Finally, lead agencies can contact the District's Air Toxics Section at 805/645-1405 or 805/645-1478 to obtain information regarding whether a facility, facility type, or operation emits or will emit TACs. This can be particularly important and useful because health risk assessments have been conducted for many such facilities in Ventura County under the District's Air Toxics "Hotspots" Program. These health risk assessments are on file with the District and are available for public review.

### **6.5.2 Assessing the Impact of Toxic Air Contaminant Emissions**

If a lead agency determines that a project it is considering will emit TACs, the next step is to assess the potential of those toxic emissions to adversely impact nearby populations. This determination can be made by conducting an appropriate TAC health risk assessment.

The California Air Pollution Control Officers Association (CAPCOA) has developed TAC health risk assessment guidelines to provide consistent, statewide procedures for preparing the health risk assessments required under the Air Toxics "Hot Spots" Act. The title of these guidelines is *CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines*. The current version of the CAPCOA guidelines is dated October 1993. The CAPCOA guidelines can be downloaded from the California Air Resource Board's (ARB) website at <http://www.arb.ca.gov/ab2588/riskassess.htm>.

The District has prepared a supplement to the CAPCOA guidelines for preparing health risk assessments in Ventura County. The District's supplemental guidelines is titled *Supplement to the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines*. The current version of this document is dated March 23, 1995, and can be downloaded from the District's website at [http://www.vcapcd.org/air\\_toxics.htm](http://www.vcapcd.org/air_toxics.htm). The District recommends that lead agencies conduct TAC risk assessments in accordance with

the CAPCOA Risk Assessment Guidelines, as supplemented by the District's supplemental guidelines.

The CAPCOA Risk Assessment Guidelines contain procedures for both screening level and formal health risk assessments. Because formal TAC health risk assessments can be complex and time consuming, a screening health risk analysis is useful for quickly defining a worst-case estimate of risk and for determining if further analysis using a formal health risk assessment is needed. However, a screening health risk assessment for a project is not appropriate if the assumptions and parameters on which the screening risk analysis is based are not suitable for the subject project. In such a case, the screening analysis may not be accurate and a formal risk assessment should be conducted.

If the results of the screening analysis show that the lifetime excess cancer risk to the maximum exposed individual is less than one in one-million and the hazard indices for acute and chronic noncancer health effects are less than 0.1, no further analysis for TAC impacts is needed. If the results are greater than these values, then a formal health risk assessment should be conducted. The results of both the screening health risk assessment and the formal health risk assessment should be included and documented in the environmental document for the project.

Lead agencies also should consult with the District's Engineering and Permit Division at 805/645-1421 or 805/645-1405 as early as possible in their respective project review and approval process for projects that will emit TACs. Such projects also may require a Permit to Operate from the District. All projects that require a District Permit to Operate are evaluated by the District for potential TAC impacts. Moreover, California Health and Safety Code §42301.6 and Public Resources Code §21151.8 (a)(2), require that any new school, or proposed industrial or commercial project site located within 1,000 feet of a school, must be referred to the District for review.

### **6.5.3 Projects Near Existing Sources of Toxic Air Contaminants**

Proposed new land uses that will be located within one-quarter mile of an existing source (or sources) of TACs should be evaluated for the potential to be impacted by those TACs. A lead agency processing a land use entitlement for a project near an existing source of toxic air emissions should consult with the District's Air Toxics Section to review any toxic air emissions information, especially health risk assessments, the District may have regarding that source of toxic air emissions. Such information may have been gathered by the District pursuant to the District's AB 2588 Air Toxics "Hot Spots" Program and as part of the air pollution permit process for facilities that require air pollution permits.

If the District has required a health risk assessment for the existing TAC source, the lead agency should, in consultation with the District, review that health risk assessment to determine an area around the source within which people in the proposed project would be exposed to either a cancer or noncancer risk in excess of the significance thresholds for



TACs presented in Section 3.3.2, "Other Pollutants of Concern." If there is more than one source of toxic air emissions within one-quarter mile of the proposed project, the lead agency should develop an individual health risk for the proposed project based on the health risk assessments for all of the identified toxic air emissions sources.

If a health risk assessment has not been done for the nearby source of TACs, the lead agency should make a reasonable attempt to gather toxic air emissions information from that source. No proprietary information should be needed to perform the health risk assessments. A health risk assessment then should be conducted for that source if the lead agency has obtained sufficient information on which to base the assessment. The lead agency should consult with the District's Air Toxics Section to determine whether the location of the proposed project relative to the TAC source has the potential to subject people in the proposed project to TAC risks in excess of the TAC significance thresholds presented in Section 3.3.2, "Other Pollutants of Concern." Pursuant to CEQA §15151, the sufficiency of the air toxics analysis should be reviewed in light of what is reasonably feasible.

Based on the results of the preceding analyses, a determination should be made by the lead agency as to whether the subject project, as proposed, would subject the population of the project to significant TAC impacts. If it is determined that the population would be subjected to a significant TAC impact, appropriate mitigation measures should be proposed to reduce that impact to acceptable levels. TAC mitigation measures are discussed in Section 7.5.6, "Toxic Air Contaminant Mitigation."

#### **6.5.4 Asbestos**

Asbestos is listed as a TAC by both the State of California and by the U.S. EPA. It is discussed in these Guidelines as a separate TAC issue because of its widespread presence in the environment, its human health implications, and its concern among the public.

Construction projects sometimes require the demolition of existing buildings at the project site. Depending upon the types of building materials that were used and the year in which the building was constructed, many different areas and fixtures in a building may contain asbestos. Exposure to asbestos may cause serious health effects. For example, asbestos exposure can increase the risk of lung cancer by five times. Cancer of the stomach and internal organs such as the mouth, esophagus, larynx, kidneys, and colon can also be caused by asbestos exposure. Asbestos is likely to be found in buildings constructed before 1979 and almost certain to be present in those built before 1950.

Demolition or renovation activities involving asbestos materials are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations (40 CFR Part 61, Subpart M). These regulations apply to commercial projects as well as some types of residential projects, and require a thorough inspection (or survey) of the site that is to be demolished or renovated

to determine whether asbestos materials are present. These regulations also contain notification and remediation requirements.

Demolition or renovation activities involving asbestos materials also are subject to APCD Rule 62.7, Asbestos, Demolition and Renovation. The District's Compliance Division should be contacted at 805/645-1443 to determine any asbestos inspection and compliance requirements before commencing demolition or renovation of any building. Compliance with APCD Rule 62.7 is adequate to ensure that asbestos entrainment will not cause a significant adverse impact.

Additional information regarding asbestos materials and regulation of activities involving asbestos can be found at the District's website located at <http://www.vcapcd.org/asbestos.htm>.

## **6.6 ODORS**

The environmental document for a proposed project should include an assessment of the potential for a proposed project to cause a public nuisance by subjecting surrounding land uses to objectionable odors. A public nuisance is defined by APCD Rule 51, Nuisance, as "...such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The assessment also should evaluate the potential for a proposed project to be impacted by objectionable odors from nearby existing or proposed land uses. Potential odor impacts on residential areas, schools, day care centers, playgrounds, retirement homes, convalescent homes, hospitals, and job sites warrant the closest examination. Any project that has the potential to create a public nuisance by subjecting members of the public to objectionable odors should be deemed to have a significant odor impact.

The first step in an odor analysis is to determine whether the proposed project (or nearby source) could generate odorous emissions in such quantities as to be a nuisance to nearby land uses (or to the proposed project). This should be based on information submitted by the project applicant and on the lead agency's and the District's knowledge and experience with the same or similar facility type. For example, new housing developments generally do not cause odor nuisances to nearby land uses. However, a proposed fiberglass manufacturing facility near an existing or proposed residential development may pose a nuisance to the residents of that development because of odors. Table 6-3, "Project Screening Distances for Odorous Land Uses," lists facility types known to emit objectionable odors and thus may be sources of nuisance odors to nearby land uses. The list is a guide and, as such, is not all-inclusive. Other types of facilities not on the list also may generate objectionable odors. Lead agencies should consider the odor potential of each new project based on its type and its location with respect to other land uses that may be adversely affected by any odors the proposed project may generate.

For projects that may generate odorous emissions, or may be impacted by odorous emissions, the next step is to determine if the potential source of the odors, or the potential receptor of the odors, is closer than the screening distances in Table 6-3.

If the source (or a similar type) is listed on Table 6-3, and the distance between the source and the receptor of the subject odors is closer than the distances in Table 6-3, a more thorough evaluation should be conducted. The evaluation should be based on possible objectionable odors associated with the same or similar facilities, the type and potential severity of the odorous emissions, the probability of process operations (including possible short-term process upsets) releasing odorous emissions, complaint history associated with those projects (contact the District's Compliance Division at 805/645-1445 for information regarding a facility's complaint history), the distance between the potential odorous source, prevailing wind direction and speed, the percentage of time that a potential affected population will be located downwind of the proposed project, and any other information that the lead agency finds applicable.

For a project locating near an existing source of odorous emissions, a significant odor impact may occur if the odor source has:

- More than one confirmed odor complaint per year with the District, averaged over a three-year period.
- Three unconfirmed odor complaints per year with the District, averaged over a three-year period.

Any odor complaints should be mapped in relation to the odor source to establish a general boundary for any possible odor impacts. It should be noted that, due to confidentiality requirements regarding citizen nuisance complaints to the District, only the block number of any such complaints will be given. The name and address of the complainants, and the date of the complaints, will not be given.

For new projects that may emit odorous emissions, the analysis should consider the distance and frequency of odor complaints that have occurred in the vicinity of similar facilities.

If it is determined that a proposed project may either cause a significant odor impact, or be significantly impacted by odors from an existing facility, all feasible mitigation measures should be applied to minimize or eliminate the odors. Mitigation measures to reduce significant odor impacts are discussed in Section 7.5.7, "Odor Mitigation."

**TABLE 6-3  
PROJECT SCREENING DISTANCES  
FOR ODOROUS LAND USES**

<b>Land Use</b>	<b>Screening Distance</b>
Wastewater Treatment Facilities*	2 miles
Sanitary Landfills*	1 mile
Solid Waste Transfer Station*	1 mile
Composting Facilities*	1 mile
Asphalt Batch Plants*	1 mile
Painting and Coating Operations*	1 mile
Fiberglass Operations*	1 mile
Food Processing Facilities*	1 mile
Coffee Roasters**	1 mile
Commercial Charbroiling**	1 mile
Feed Lots/Dairies*	1 mile
Petroleum Refineries*	2 miles
Chemical Manufacturing Facilities*	1 mile
Green Waste and Recycling Operations**	2 miles
Wastewater Pumping Facilities**	1 mile
Mushroom Farms**	2 miles
Petroleum Extraction, Processing, Storage, and Non-retail Marketing Facilities**	1 mile
Rendering Plants*	1 mile
Metal Smelting Plants**	1 mile

\*Guide for Assessing and Mitigating Air Quality Impacts, Table 4-2, "Project Screening Trigger Levels for Potential Odor Sources," San Joaquin Valley Unified Air Pollution Control District, August 1998.

\*\*Ventura County APCD staff, August 2000.

## **7. MITIGATION MEASURES**

### **7.1 INTRODUCTION**

This chapter provides guidance on selecting mitigation measures for projects that may have a significant impact on air quality. The chapter also includes guidance for evaluating mitigation measure effectiveness, implementation, and monitoring. The mitigation measure tables in the chapter contain measures, organized by type, that project proponents and public agencies can consider to mitigate a project's air quality impacts. The tables of mitigation measures are not intended to be exhaustive, and lead agencies and project proponents are encouraged to identify and quantify additional appropriate mitigation measures for specific projects. Mitigation measures to reduce emissions from project construction are presented in Section 7.4, "Construction Mitigation." Section 7.5, "Project Mitigation" presents measures that can be used to reduce emissions during the "operational" period of the project, after project construction has been completed.

### **7.2 CEQA REQUIREMENTS FOR MITIGATION MEASURES**

The California Environmental Quality Act (CEQA) Guidelines require that Environmental Impact Reports (EIRs) "describe measures which could minimize significant adverse impacts" (California Code of Regulations (CCR) §15126(c)). In addition, the CCR states that "a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures that would substantially lessen any significant effects that the project would have on the environment" (CCR §15021(a)(2)).

"Feasible" means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CCR §15364). Lead agencies are responsible for determining the feasibility of mitigation measures. If impacts identified in the environmental analysis cannot be mitigated below the significance threshold, they must, nevertheless, be reduced as much as feasible. Air quality thresholds of significance are discussed in Chapter 3, Air Quality Significance Thresholds.

In making a finding concerning the feasibility of mitigation measures, the CCR allows public agencies to find that "specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives in the final EIR" (CCR §15091(a)(3)). However, in making such a finding, CCR §15091(b) states that the findings "shall be supported by substantial evidence in the record." Furthermore, the courts have ruled that the agency must present some explanation to supply the logical step between the ultimate finding and the facts in the record.

It is possible that project emissions will still be significant after inclusion of all feasible mitigation measures. A public agency may approve a project with a significant

environmental impact. According to the CEQA Guidelines, “if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered ‘acceptable’” (CCR §15093(a)). In doing so, “the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record” (CCR §15093(b)). The decision-making agency must make a statement in the record of its views on the ultimate balancing of the merits of approving the project despite the environmental impact. If an agency makes a statement of overriding consideration, the statement should be included in the record of the project approval and should be mentioned in the notice of determination.

An air quality section of an environmental document must identify all potential effects of a project on the environment and examine available alternatives to avoid, minimize, reduce, eliminate, or compensate for significant impacts. For each potential adverse impact, mitigation measures should be identified to reduce impacts below the air quality threshold of significance (see Section 3.3, “Significance Criteria”). Design modifications that could reduce impacts also should be considered. The control effectiveness of each measure should be quantified to the extent possible. If a measure cannot be quantified, a qualitative discussion should be provided explaining the benefits of the proposed mitigation measure. If a proposed mitigation measure has the potential to cause a significant effect, the effects of the mitigation measure should be discussed, though in less detail than the proposed project (CCR §15126.4(D)).

### **7.2.1 Effectiveness Estimates**

Mitigation measure effectiveness estimates should be based on reasonable assumptions about the project. When developing mitigation measures for environmental documents, the lead agency should document all assumptions and sources used in determining the measure’s effectiveness. This includes what emissions will be affected by the measure, how the measure will affect the targeted emissions, the source of the effectiveness estimate for the measure, and any circumstances that warrant effectiveness beyond the minimum effectiveness estimates contained in URBEMIS, these Guidelines, or other sources.

### **7.2.2 Implementation, Monitoring, and Enforceability**

The lead agency should identify the method of measure implementation, monitoring, and enforceability at the time of measure development, including:

- Who is responsible for implementation.
- What must be done, and for how long.
- Where it is to be carried out.

- An implementation schedule, including interim implementation targets if the project is to be phased.
- What additional measures, if any, must be done and by whom if: 1) the measure is implemented but does not achieve the anticipated emission reductions, or 2) the entity responsible for implementation fails to implement the measure.
- Who is responsible for monitoring measure implementation.
- Criteria for assessing whether the measure has been implemented.
- Enforcement mechanisms to ensure implementation.

### Implementation

CEQA provides that mitigation includes “reducing or eliminating the impact over time by preservation or maintenance operations during the life of the action” (CCR §15370(d)). However, for many projects, the life of the action may be difficult to determine. Residential projects may have a life span of 50 years or more. Commercial and industrial projects may have a life span of 10 years or less. Frequently, jurisdictions will issue conditional use permits for commercial and industrial projects for only 5 or 10 years, after which the project must reapply for an extension or modification of the existing conditional use permit, at which time additional conditions may be imposed.

### Monitoring

CEQA requires that a public agency that incorporates changes or alterations to a project to mitigate significant effects must also adopt monitoring or reporting requirements for the mitigation measures that it imposes. Monitoring or reporting requirements must be adopted for mitigation measures required through EIRs and for Mitigated Negative Declarations (MNDs). The monitoring or reporting requirements must be adopted when the agency makes findings required by CEQA for project approval (Public Resources Code (PRC) §21081.6(a)). Each lead agency should determine how long monitoring or reporting requirements are necessary given that the motor vehicle fleet is becoming cleaner over time and that new technology will be available in the future that will substantially lessen the emissions thereafter.

### Enforceability

The lead agency should structure mitigation measure implementation and enforcement in such a way as to maximize the likelihood that the measure will be fully implemented, as required by Public Resources Code §21081.6(b), which states:

A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.

A lead agency can implement mitigation measures through such mechanisms as land use entitlement conditions, recording the conditions on the property title, incorporating the mitigation measures in a development agreement, incorporating the mitigation measures into the project description or specific plan, or by drawing up a mitigation agreement between the project proponent and the lead agency.

### **7.3 PLAN-LEVEL MITIGATION**

This section describes Ventura County Air Pollution Control District (APCD or District) recommendations for lead agencies preparing environmental documents for large-scale plans and policy documents including (but not limited to): general, community, master, area, specific, and local coastal plans. Since these plans and policy documents are intended to guide development patterns, they are an ideal mechanism to encourage land use design and development that minimizes air quality impacts. The most appropriate stage to address issues, such as allowable land use densities, mixing of land uses, street standards, and parking requirements, is at the plan level. Many of the specific mitigation measures discussed in Section 7.5.2, "Operational Mitigation Measures," can be promoted at the plan level through zoning ordinances, parking standards, and design guidelines. Additionally, both the California Air Resources Board website at <http://www.arb.ca.gov> and the U.S. Environmental Protection Agency website at <http://epa.gov> have recommendations for designing projects to reduce air quality impacts. Incorporating air quality strategies into plan and policy documents can minimize the need for mitigation of individual development proposals.

Cities and the County should consider the following strategies when developing or revising plan and policy documents:

- A commitment to determine and mitigate project level and cumulative air quality impacts under CEQA (including implementation of the transportation control measures in the *Ventura County Air Quality Management Plan* (AQMP), such as the Transportation Demand Management (TDM) Facilities Ordinance (TCM B), Non-motorized Strategies (TCM D), and Regional Transit Programs (TCM E)).
- A commitment to integrate land use plans, transportation plans, and air quality plans.
- A commitment to plan land uses in ways that support a multi-modal transportation system.



- A commitment to take local action to support programs that reduce congestion and vehicle trips.

## **7.4 CONSTRUCTION MITIGATION**

The mitigation measures described in this section are designed to control emissions caused by project construction activities - grading, clearing, excavation, earth moving, and mobile equipment necessary to perform these activities. Measures to control fugitive dust caused by project construction are presented in Section 7.4.1, "Fugitive Dust Mitigation Measures." Measures to control Valley Fever fungal spore entrainment are presented in Section 7.4.2, "Valley Fever Mitigation Measures." Measures to control reactive organic compounds (ROC) and oxides of nitrogen (NO<sub>x</sub>) emissions from project construction are presented in Section 7.4.3, "ROC and NO<sub>x</sub> Construction Mitigation Measures."

As discussed in Section 5.2, "Calculating Ozone Precursor Emissions from Project Construction," construction-related ROC and NO<sub>x</sub> emissions are not counted toward the ROC and NO<sub>x</sub> significance thresholds, since these emissions are only temporary. Therefore, when calculating project emissions using URBEMIS, construction emissions should not be included in the analysis; only area source emissions and operational emissions boxes should be included. However, after project emissions have been calculated, the user may want to access the construction mitigation measures component of the program. If so, in the "Load an Existing Project" screen, select "Edit These Project Settings," then check the construction box in the "Project Emission Sources" panel. This will enable you to access the construction module of the URBEMIS program, including the mitigation measure screens. Additional mitigation measures not quantified by URBEMIS can be included in the construction emissions analysis by choosing the user defined mitigation tabs for each of the three construction phases.

Since the air pollutant levels in Ventura County exceed the state and federal ozone standards and the state PM<sub>10</sub> standard, APCD recommends that lead agencies include measures in Sections 7.4.1, "Fugitive Dust Mitigation Measures," and 7.4.3, "ROC and NO<sub>x</sub> Construction Mitigation Measures," in all projects that include construction activities, with special attention given to projects that require a grading permit. If the project poses a risk for Valley Fever (see Section 6.3, "San Joaquin Valley Fever"), APCD recommends that the measures in Section 7.4.2, "Valley Fever Mitigation Measures," be included (in addition to the measures in Section 7.4.1, "Fugitive Dust Mitigation Measures," to minimize Valley Fever fungal spore entrainment.

### **7.4.1 Fugitive Dust Mitigation Measures**

Control techniques for fugitive dust generally involve watering, chemical dust control agents for soil stabilization, scheduling of activities, and vehicle speed control. Watering, the most common and generally least expensive method, provides only temporary dust

control. Watering also usually requires the use of diesel-powered watering trucks or pumps. The effectiveness of water for fugitive dust control depends greatly on the prevailing weather conditions and frequency of application. Chemical dust control agents provide longer dust suppression, but are not effective in reducing the large portion of construction dust emissions caused by grading, excavation, and cut-and-fill operations. Dust control agents for soil stabilization are useful primarily for application on completed cuts, fills, and unpaved roadways. Fugitive dust emissions from inactive portions of a construction site can be reduced up to 80 percent with chemical stabilizers. Chemical stabilizers, however, may be costly and should be limited to environmentally-safe materials to avoid adverse effects on plant and animal life.

Scheduling activities during periods of low wind speed will also reduce fugitive dust emissions. Low wind speeds typically occur during morning hours. Highest wind speeds are observed during Santa Ana wind conditions, which commonly occur between October and February with December having the highest frequency of events. Additionally, vehicle speed control can reduce fugitive dust emissions from unpaved roads and areas at construction sites by up to 60 percent, assuming compliance with a 15 miles per hour (mph) on-site speed limit.

Fugitive dust mitigation measures are presented below, as a model Fugitive Dust Mitigation Plan. This model plan is intended to be a starting point for lead agencies to use for fugitive dust mitigation. As new measures become available or known, lead agencies should add them to their standard list of fugitive dust mitigation measures. The model fugitive dust plan can be incorporated into a project in a variety of ways, including (but not limited to): part of a project description, developer agreement, as project conditions, or as part of a larger air quality or project mitigation plan.

#### **7.4.1.1 Model Fugitive Dust Mitigation Plan**

1. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
2. Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
3. Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:
  - a) All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
  - b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic

watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

4. Graded and/or excavated inactive areas of the construction site shall be monitored by (indicate by whom) at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
5. Signs shall be posted on-site limiting traffic to 15 miles per hour or less.
6. During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.
7. Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
8. Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

#### **7.4.2 Valley Fever Mitigation Measures**

As discussed in Section 6.3, "San Joaquin Valley Fever," if the project site poses a risk for Valley Fever, APCD recommends that the lead agency include appropriate Valley Fever mitigation measures in the environmental document for the project. These measures should be considered, in addition to the fugitive dust mitigation measures listed in Section 7.4.1, "Fugitive Dust Mitigation Measures," to minimize Valley Fever risk during project construction:

1. Restrict employment to persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection).
2. Hire crews from local populations where possible, since it is more likely that they have been previously exposed to the fungus and are therefore immune.
3. Require crews to use respirators during project clearing, grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.

4. Require that the cabs of grading and construction equipment be air-conditioned.
5. Require crews to work upwind from excavation sites.
6. Pave construction roads.
7. Where acceptable to the fire department, control weed growth by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.
8. During rough grading and construction, the access way into the project site from adjoining paved roadways should be paved or treated with environmentally-safe dust control agents.

#### **7.4.3 ROC and NOx Construction Mitigation Measures**

As discussed in Chapter 5, Estimating Ozone Precursor Emissions, ozone precursor emissions from construction vehicles can be substantial. However, there are very few feasible measures available to reduce these emissions. APCD recommends the following measures to mitigate ozone precursor emissions from construction motor vehicles:

1. Minimize equipment idling time.
2. Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.
3. Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
4. Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

### **7.5 PROJECT MITIGATION**

The mitigation measures described in this section are designed to control emissions caused by activities at the project site after construction is completed and the project is operational. Mitigation measures to control area source emissions from the project are presented in Section 7.5.1, "Area Source Mitigation Measures." Mitigation measures to control operational emissions are presented in Section 7.5.2, "Operational Mitigation Measures." Mitigation measures that can be applied to a project, but which may take place at a location other than the project site, are presented in Section 7.5.3, "Off-Site TDM Fund."

URBEMIS contains project mitigation measure options. When running the program, checking the "Mitigation Measures" boxes in the main screens for area source emissions and operational emissions can access those options, respectively. Additional mitigation measures not quantified by URBEMIS can be included in the project emissions analysis by choosing "New Area Source Mitigation Measures" in the Area Emissions main screen

(see Section III.7 of the URBEMIS User's Guide), and by choosing "User Measure" in the Operational Emissions main screen (see Section III.8 of the URBEMIS User's Guide).

### **7.5.1 Area Source Mitigation Measures**

Area sources are sources that individually emit small quantities of air pollutants, but which cumulatively may generate significant quantities of emissions. Area source emissions include fuel combustion from natural gas appliances, utility engines (including landscape maintenance equipment), and consumer products. Area source mitigation measures include, but are not limited to, energy efficiency measures to reduce air emissions associated with energy generation and use. Such measures include increasing structural energy efficiency beyond the requirements of California's Title 24 energy efficiency standards (Title 24, California Code of Regulations, Part 6 - *California Energy Efficiency Standards for Residential and Nonresidential Buildings*). Title 24, Part 6 can be downloaded from <http://www.energy.ca.gov/title24/>.

Area source mitigation measures to reduce project emissions are listed in Table 7-1, "Area Source Mitigation Measures."

APCD recommends that area source mitigation measures be included in all projects that have been determined to have a significant air quality impact. If, after including all feasible area source mitigation measures, the project still exceeds the ROC and NO<sub>x</sub> significance thresholds, operational mitigation measures (Section 7.5.2, "Operational Mitigation Measures") should be applied to the project.

**TABLE 7-1**  
**AREA SOURCE MITIGATION MEASURES**

Emission Source	Mitigation Measure	Emission Reduction (%)	
		ROC	NOx
Residential Water Heaters	Use solar or low emission water heaters	11	9.5
	Use central water heating systems	9	8
Residential Heating	Orient buildings to the north for natural cooling and heating	14	13
	Increase walls and attic insulation beyond Title 24* requirements	14	13
Residential Landscape Maintenance	Provide electric maintenance equipment	100	100
Commercial Water Heaters	Use solar or low-emission water heaters	0.5	0.5
	Use central water heating systems	0.5	0.5
Commercial Heating	Orient buildings to the north for natural cooling and heating	11	13.5
	Increase walls and attic insulation beyond Title 24* requirements	10	9
Commercial Landscape Maintenance	Provide electric maintenance equipment	100	100
Industrial Heating	Orient buildings to the north for natural cooling and heating	2	3

\*Title 24, California Code of Regulations, Part 6 - California Energy Efficiency Standards for Residential and Nonresidential Buildings

Source: URBEMIS User's Guide, Yolo-Solano Air Quality Management District, November 2002.

### 7.5.2 Operational Mitigation Measures

Operational emissions include emissions associated with motor vehicle trips generated by or attracted to land uses, and from dust generated by motor vehicles associated with the project on paved or unpaved roads. For many land uses, motor vehicle trips are often the primary source of emissions associated with the project. These motor vehicle trip emissions associated with land uses are often referred to as "indirect sources" of emissions. Broadly speaking, mitigation measures to reduce emissions from project operation include strategies that reduce vehicle trips or vehicle miles traveled (VMT), use of low emission vehicles, and measures that improve traffic flow or reduce congestion.

The URBEMIS program categorizes operational mitigation measures by project type - either residential or non-residential (commercial/industrial). The program requires input

of two types of information: 1) information about the environment surrounding the project area (called "Environmental Factors" on the Operational Emission Sources main screen), and 2) information about the mitigation actually being done for the project (called "Vehicle Trip Mitigation"). URBEMIS applies the environmental factors created by the project environment screens to the project specific mitigation measures. This results in percent reduction in trips and reductions in VMT. Correction factors are then applied to account for differences in measure effectiveness by trip type and trip distance. Emission factors are then applied to the trips and VMT reductions to yield mitigation measure emission reductions.

### Environmental Factors

Environmental factors describe conditions that exist or are planned around the project area with regard to the pedestrian, bicycle, and transit environment. These screens require a qualitative assessment of conditions surrounding the project areas. The user has two options: selecting the default settings, which is the level achievable by a standard suburban-oriented subdivision or commercial development; or, developing environmental factors by going through a series of screens describing the pedestrian, transit, and bicycle environment surrounding the project.

One factor that lead agencies should consider in evaluating the project environment is each jurisdiction's locally-adopted Transportation Demand Management (TDM) Facilities Ordinance. These ordinances were adopted by all of the cities and the County of Ventura as required by state law related to the Congestion Management Plan (CMP) requirements. The Ventura County Transportation Commission adopted a model ordinance which contains the following seven basic elements, which were to be included in all local ordinances in Ventura County:

1. Standards for the number, size, and location of preferential carpool and vanpool parking spaces.
2. Standards for the number and location of bicycle racks and/or lockers.
3. Requirements for the provision, where feasible and appropriate, of transit stop improvements (i.e., bus pullouts, bus pads, shelters, etc.)
4. Requirement for the provision of a transportation information center at non-residential developments serving 50 or more employees.
5. Safe and convenient access for pedestrians and bicyclists from the external circulation system to on-site buildings or internal streets/sidewalks.
6. A formal role for transit operators in the local jurisdiction's environmental and developmental review processes.
7. Requirements for large developments to address the provision of needed services in close proximity to either jobs or housing.

### Vehicle Trip Mitigation

The Vehicle Trip Mitigation screens describe measures associated with the specific project being implemented. URBEMIS categorizes these project measures as follows: regional and non-regional transit measures, residential measures, and non-residential measures. Operational mitigation measures to reduce project emissions are listed in Table 7-2, "Operational Mitigation Measures." APCD recommends that the mitigation measures selected for a project be developed and implemented within a comprehensive on-site program, where possible, to enhance the effectiveness of the individual measures. Appendix R-94, Transportation Control Measure Documentation, of the *Ventura County Air Quality Management Plan* can also be used for information about transportation control measures.

As stated in Section 5.3, "Calculating Emissions from Residential, Commercial, Industrial, and Institutional Development Projects," emissions from stationary sources, including industrial equipment, are controlled through the Ventura County APCD permit, inspection, and enforcement programs and procedures, and, therefore, are not addressed in these Guidelines.

APCD recommends that operational mitigation measures be included in projects that have been determined to have a significant air quality impact, even after including all feasible area source mitigation measures (Section 7.5.1, "Area Source Mitigation Measures"). If the project exceeds the ROC and NO<sub>x</sub> significance thresholds after inclusion of area and operational mitigation measures (Sections 7.5.1, "Area Source Mitigation Measures," and 7.5.2, "Operational Mitigation Measures"), off-site TDM fund mitigation measures (Section 7.5.3, "Off-site TDM Fund") should be applied to the project.

Project applicants may propose other mitigation measures not included in these Guidelines. Project applicants and lead agencies should consult with the Ventura County APCD before including miscellaneous mitigation measures in an environmental document.



**TABLE 7-2  
OPERATIONAL MITIGATION MEASURES**

<b>Measure Type</b>	<b>Mitigation Measure</b>	<b>Max. Trip Reduction (%)<sup>*</sup></b>
<u>Residential</u>		
Transit Infrastructure	Project density meets transit level of service requirements	6
	Provide transit shelters, benches, etc.	2
	Provide street lighting	0.5
	Provide route signs and displays	0.5
	Provide bus turnouts/bulbs	1
Pedestrian Infrastructure	Mixed use project (residential oriented)	3
	Provide sidewalks and/or pedestrian paths	1
	Provide direct pedestrian connections	1
	Provide pedestrian safety design/infrastructure	0.5
	Provide street furniture and artwork	0.5
	Provide street lighting	0.5
	Provide pedestrian signalization and signage	0.5
Bicycle Infrastructure	Provide bike lanes/paths connecting to bikeway system	2 **
Trip Reduction/VMT	Park-and-ride lots	***
	Satellite telecommuting center	***
<u>Commercial/Industrial</u>		
Transit Infrastructure	Project density meets transit level of service requirements	6
	Provide transit shelters, benches, etc.	2
	Provide street lighting	0.5
	Provide route signs and displays	0.5
	Provide bus turnouts/bulbs	1
Pedestrian Infrastructure	Mixed use project (commercial oriented)	1
	Floor area ratio 0.75 or greater	1
	Provide wide sidewalks and onsite pedestrian facilities	1
	Project uses parking structure(s)/small dispersed lots	1

TABLE 7-2 (CONTINUED)

Measure Type	Mitigation Measure	Max. Trip Reduction (%) <sup>*</sup>
<u>Commercial/Industrial</u>		
Pedestrian	Provide street lighting	0.5
Infrastructure (cont'd)	Project provides shade trees to shade sidewalks	0.5
	Project provides street art and/or street furniture	0.5
	Project uses zero building setback with entrance on street	0.5
	Provide pedestrian safety designs/infrastructure at crossings	0.5
	Articulated storefront display windows for visual interest	0.25
Bicycle Infrastructure	No long uninterrupted walls along pedestrian access routes	0.25
	Provide bike lanes/paths connecting to bikeway system	2
	Provide secure bicycle parking	1
	Provide employee lockers and showers	1
Trip Reduction	Charge for employee parking	
	- more than \$5/day	10
	- \$3-\$5/day	4
	- less than \$3/day	2
	Shuttle/minibus service to transit/multi-modal center	2
	Preferential carpool/vanpool parking	1.5
	Parking limited (below minimum)	1
	Employee rideshare incentive program	1
	Day care center on-site or within ½ mile	1
	Employee telecommuting program	40
	Compressed work schedule	
	- 3/36	40
	- 4/40	20
	- 9/80	10
	Charge for customer parking	
	- \$1/hour	11
	- \$0.60/hour	5
	- \$0.25/hour	2

**TABLE 7-2 (CONTINUED)**

<b>Measure Type</b>	<b>Mitigation Measure</b>	<b>Max. Trip Reduction (%)<sup>*</sup></b>
<u>Commercial/Industrial</u>	Lunch/shopping shuttle service	1.5
<u>VMT</u>	Provide on-site shops and services	
	- many frequently needed services	5
	- some frequently needed services	3
	- minor services	1
Trip Reduction/VMT	Park-and-ride lots	**
	Satellite telecommuting center	***

<sup>\*</sup> URBEMIS Program Screens, Yolo-Solano Air Quality Management District, November 2002.

<sup>\*\*</sup> number of spaces x 89% x miles/trip = miles reduced.

<sup>\*\*\*</sup> number of workstations x 89% x miles/trip = miles reduced.

### **7.5.3 Contribution to an Off-Site TDM Fund**

The Off-Site TDM Fund is a mitigation measure that can be used by project proponents for projects and programs that exceed the ROC and NOx significance thresholds. This measure applies to commercial, industrial, institutional, and residential projects, and calls for contributing to a city or county mobile source emission reduction fund established specifically to reduce emissions from transportation sources. The amount of funding is commensurate with the amount of emissions that need to be mitigated. Mitigation programs that could be funded through such an off-site TDM fund include (but are not limited to) public transit service, vanpool programs/subsidies, rideshare assistance programs, and off-site TDM facilities.

APCD recommends that this mitigation measure be implemented only after all feasible area and operational mitigation measures (Sections 7.5.1, "Area Source Mitigation Measures," and 7.5.2, "Operational Mitigation Measures") have been applied to the development project, and project emissions are still considered significant. The amount of funding should be commensurate with the quantity of emissions left to be mitigated after application of all other feasible area and operational source mitigation measures. The following conditions should apply to the use of the funds collected (including accumulated interest) under an Off-site TDM Fund:

1. The lead agency should determine the basis for collection and how the funds are to be spent. The funds should be spent or committed to a mitigation project within five years of receipt of the funds.

2. Funds should be used for mitigation projects or programs in areas that are either directly or indirectly impacted by the development project and are within Ventura County. Ridesharing arrangements or public transit services that originate outside the area but serve the area directly or indirectly impacted by the development project are also eligible uses of the funds.
3. The lead agency should establish an off-site TDM fund to receive and hold the funds until the funds are spent on an approved mitigation project or program.
4. Funds should not be used for traffic engineering projects, including signal synchronization, intersection improvements, and channelization, as these projects are related to improving traffic congestion and not air quality.
5. Any on-site or off-site TDM facilities provided by a development project to mitigate its emissions before determining the funding should not be credited toward the funds paid by the development project as a mitigation measure. Doing so would be taking credit for the mitigation twice.
6. A development project that is to be developed in phases should calculate the pro-rata share of funding from each phase of development based on emissions for the year of complete buildout. Such pro-rata share of funding should be paid in one lump sum or spread out evenly over three years in order to minimize the initial cost and provide a stable funding source.
7. The lead agency should report annually to its respective governing board on collection, expenditure, and use of collected funds.
8. The calculation and use of funding to a mobile source emission reduction fund must be in accordance with all applicable statutory requirements.

The cost of reducing emissions through funding an off-site TDM fund can be determined using the equation shown below. The cost should be calculated separately for ROC and NOx. The amount is based on only the higher of the two costs, since funding will result in mitigation programs that reduce both pollutants. Usually, the cost to mitigate NOx emissions will be greater than the cost to mitigate ROC emissions because the NOx emissions for most projects are greater than ROC emissions.

$$TC_{(ROC \text{ or } NOx)} = EE_{(ROC \text{ or } NOx)} \times UC_{(ROC \text{ or } NOx)} \times D \times 3 \text{ years}$$

where:

$TC_{(ROC \text{ or } NOx)}$  = Total cost for TDM fund mitigation program

$EE_{(ROC \text{ or } NOx)}$  = Excess emissions; pounds per day of ROC or NOx over the applicable significance threshold

$UC_{(ROC \text{ or } NOx)}$  = Unit cost per lb. of ROC or NOx reduced

ROC = \$5.18 (for projects completed in 2000)

NOx = \$7.54 (for projects completed in 2000)

D = Days of operation per year

The unit cost is \$5.18 per pound of ROC reduced, and \$7.54 per pound of NO<sub>x</sub> reduced, for development projects that will be completed in 2000. These amounts are based on the cost-effectiveness of ridesharing programs as calculated using the 2000 - 2001 fiscal year budget for Southern California Rideshare's (SCR) Ventura Office, the expected number of rideshare arrangements that SCR expected to form in Ventura County during 2000 - 2001, a Ventura County-specific light-duty vehicle fleet, and home-work commute trip emissions estimated by URBEMIS7G. The TDM funding unit cost (ROC or NO<sub>x</sub>) should be indexed to inflation for development projects that will be completed in future years. The recommended inflation factor can be calculated by dividing the most recent January Consumer Price Index (CPI) (All Urban Consumers (All Items 1982-84 = 100)) value for the Los Angeles-Riverside-Orange County, California region by the January 2000 CPI index value, which was 167.9. Consumer Price Index information is developed by the U. S. Department of Labor Statistics and can be found on their web site at <http://stats.bls.gov/>. The Consumer Price Index CPI information also can be found at the Department of Industrial Relations web site located at <http://www.dir.ca.gov/dlsr/PresentCCPI.html#Bookmark1>.

At a minimum, the Ventura County APCD recommends that all development projects with significant air quality impacts fully mitigate the excess emissions through funding measures for at least three years. This method of determining the amount results in an annual cost to fully mitigate both ROC and NO<sub>x</sub> emissions associated with a development project below the 5 pounds per day threshold in the Ojai Planning Area, or below the 25 pounds per day threshold in the remainder of the county.

Funding of this kind is considered to have lessened or reduced the significant environmental impact of the subject development project (see Section 7.2, "CEQA Requirements for Mitigation Measures"). A jurisdiction may allow a development project to spread the amount over the three-year period in order to minimize the initial cost to the project proponent. In most cases, the emissions from a development project will still exceed the 5 pounds per day threshold in the Ojai Planning Area, or 25 pounds per day threshold in the remainder of the county after the three-year funding. Therefore, each lead agency should determine if overriding considerations are necessary to approve the development project due to these emissions.

#### **7.5.4 Fugitive Dust Mitigation**

Mitigation measures should be identified for a project if operation of the project will cause significant fugitive dust impacts. Mitigation measures identified as construction mitigation in the Model Fugitive Dust Mitigation Plan in Section 7.4.1, "Fugitive Dust Mitigation Measures," are also applicable to fugitive dust generated by project operation.

### **7.5.5 Carbon Monoxide Mitigation**

Mitigation measures, including changes in the project, should be identified that will eliminate, or at least reduce, any modeled CO hotspots as much as feasible. Such mitigation measures will typically involve reducing traffic congestion and improving traffic flow and/or reducing idling time on roadways impacted by the project. Examples of such mitigation measures include roadway widening, adding new turn and through lanes, and changing signal light timing. The effectiveness of any proposed CO mitigation measures should be quantified by estimating the effects of the measures on traffic volumes, congestion, and/or speeds, and then remodeling the CO concentrations with CALINE4.

### **7.5.6 Toxic Air Contaminant Mitigation**

Specific mitigation measures should be identified and considered for those projects that may release toxic or hazardous air contaminants to the atmosphere in amounts that may be injurious to nearby populations. Such mitigation measures should consider both routine and non-routine toxic air pollutant releases. Mitigation measures may involve handling, storage, and disposal methods that minimize release of the subject substances to the atmosphere. In some cases, air pollution control devices or process operation modifications can be employed. Furthermore, new facilities that may release toxic or hazardous substances to the atmosphere should not be located adjacent to residences, schools, day care centers, hospitals or similar land uses where people live or frequent. Conversely, such land uses should not be located near existing facilities that emit toxic and/or hazardous air contaminants.

### **7.5.7 Odor Mitigation**

Specific mitigation measures should be identified and considered for those projects that may release odorous emissions in such quantities as to cause a public nuisance to nearby populations.

For some projects, operational changes, add-on controls, or process changes, such as carbon adsorption, incineration, or relocation of stacks/vents, can minimize odorous emissions. The lead agency may contact the District for further information regarding appropriate add-on emission controls and other technological methods to minimize odorous emissions. In many cases, however, the most effective mitigation strategy is to provide a sufficient distance, or buffer zone, between the odor source and the receptor(s) to ensure that the public will not be subjected to nuisance levels of odorous emissions. Odor mitigation measures placed on projects that are odor receptors (e.g., residential areas) that rely on sealing buildings, filtering air, or disclosure statements are not appropriate in place of technological control or buffer zones.

In establishing the size of the buffer zone, the lead agency should assess such factors as the severity of the potential odors, the length of time that potentially affected populations will be affected by the odors, prevailing wind direction and speed, and actions taken (or that will be taken) at the facility to control odorous emissions. A safety margin should also be considered in establishing the buffer zone to allow for possible future expansions of operations at the source of the odors. Lead agencies can consult the District regarding the appropriate buffer zone size for particular projects that may create significant odor impacts.

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